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JOHN A. MOLNAR, JR.
PARKER-HANNIFIN CORPORATION
61035 PARKLAND BOULEVARD
CLEVELAND, OH 44124-4141

EXAMINER

YAO, SAMCHUAN CUA

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,677

Applicant(s)

COFER ET AL.

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8. ✓
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 25 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Mayama et al (US 4,530,779). See column 4 lines 21-37, figure 4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 6-20, 25-26, 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/06551 in view of Devanathan (US 4,978,360) or Mayama et al (US 4,530,779).

With respect to claim 1, WO '551 discloses a process of making a sheathed impregnated fiber strand, the process comprises:

impregnating synthetic reinforcing fibers such as carbon or graphite fibers with an organic wetting agent in a pan to "coat substantially all" reinforcing fibers (page 6 lines 1-14; page 8 lines 5-32; page 9 lines 11-25; page 14 lines 14-23; page 24 lines 10-28), wherein the amount of wetting agent applied is preferably around 5-

15% by weight (page 16 lines 19-30); forming the impregnated reinforcing fibers into a preimpregnated bundle or strand (page 16 lines 13-32); encasing the preimpregnated strand with a thermoplastic material to form the sheathed impregnated fiber strand (page 60; claim 1). The limitation "*electrically conductive fibers*" is taken to read on carbon fibers, because carbon fibers are at least electrically semi-conductive material. In any event, it would have been obvious in the art to use electrically conductive fibers in making the sheath impregnated fiber strand of WO '551, because: a) WO '551 is open to using virtually any known reinforcing fibers as evidence from the following passage, "*...and other non-glass materials having suitable reinforcing characteristics*" (page 14 lines 19-22; page 47 lines 27-28); and, b) it is a common practice in the art to interchangeably use carbon or glass reinforcing fibers with electrically conductive reinforcing fibers. An additional incentive for using electrically conductive fibers would have simply been to make pellets which are useable for making electromagnetic wave shielding composite.

WO '551 does not teach feeding conductive fibers into a bath of wetting agent to impregnate the conductive fibers. However, it would have been obvious in the art to impregnate electrically conductive reinforcing fibers with an organic wetting agent, by feeding them into a bath of the organic wetting agent, because it is a well known and conventional in the art to feed reinforcing fibers into an organic resin bath in order to effectively impregnate the reinforcing fibers with the organic

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resin as exemplified in the teachings of Devanathan (col. 2 lines 3-14; figure 1) or Mayama et al (figure 4).

With respect to claim 2, see page 6 lines 13-14 and claim 2 of the WO '551 patent.

With respect to claim 3, see claim 17 of the WO '551. In light of the similarity of the production processes, the molded pellet in the process of WO '551 must naturally form a composite having an electromagnetic shielding characteristics, and the organic wetting agent also must naturally enable an even distribution of the fibers in the composite.

With respect to claims 6 and 8, see figure 1 of the Devanathan patent.

With respect to claim 7, one in the art would have applied a workable processing speed to ensure that fibers are effectively impregnated with an organic wetting agent.

With respect to claims 9-11 and 13, see page 17 lines 19-24; page 18 lines 5-19; and page 24 lines 10-28 of the WO '551 patent and figure 1 of the Devanathan patent.

With respect to claim 12, see page 52 lines 13-18 of the WO '551 patent.

With respect to claims 14, 16 and 18, in order to enhance production efficient, the limitation in this claim would have been obvious in the art. See figure 4 of the WO '551 patent.

With respect to claim 15, see page 31 lines 31-32 and claim 3 of the WO '551 patent.

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With respect to claim 17, one in the art would have determined, by routine experimentation, suitable pellet size for the desired end-use of the process.

With respect to claims 19-20, see page 6 lines 21-30 of the WO '551 patent.

With respect to claims 25-26, these claims are mere repetitions of the above rejected claims, for the same reasons set forth above, these claims would have obvious in the art.

With respect claims 29-35, see claim 66 of the WO '551.

5. Claims 4-5, 21-24, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over references set forth in numbered paragraph 9 above as applied to claim 1 above, and further in view of Kosuga et al (US 4,960,642) or Soens (US 5,397,608).

With respect to claims 4-5 and 27-28, it would have been obvious in the art to use electrically conductive coated non-conductive fibers in making pellets taught by WO '551 in making a molded fiber-reinforced thermoplastic composite articles, because: Kosuga et al teaches conductive fibers such as metal-coated glass fibers to make pellets, wherein the pellet is heat-molded to form an electromagnetic wave shielding composite. Moreover, absent any showing of unexpected result, it would have been obvious in the art to use non-electrically conductive carbon fibers which are electroplated with a metallic coating, as such is a well known way of forming an electrically conductive fibers. There is none, but only the expected result of providing electrically conductive fibers, would have been achieved.

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With respect to claims 21-24, since: a) WO '551 teaches impregnating fibers with a film forming organic matrix in forming pellets (page 9 lines 11-25); b) a wax is a well known film forming organic matrix; and, c) Kosuga et al, drawn to a process of making pellets, teaches impregnating a electrically conductive fibers with a wax to enhance a wettability of conductive fibers so that the fibers can be dispersed uniformly in a matrix resin (col. 3 lines 6-32; claims 1-2), it would have been obvious in the art to impregnate conductive reinforcing fibers in the process taught by WO '551. As for the wax emulsion bath composition, it is conventional in the art to use a wax emulsion bath for impregnating fibers and the recited composition is taken to be old in the art. Moreover, the recited composition is taken to be a result effective variable, routinely optimized by those versed in the art. As for the desired amount of wax coating on the fibers, see claim 1 of the Kosuga et al patent and page 6 lines 21-30 of the WO '551 patent. As for claims 22-24, see claim 3 of the Kosuga et al patent. Moreover, the recited thermoplastic sheathing materials and recited pre-heating step are taken to be conventional in the art.

6. Claims 1-9, 11-20, and 26-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayama et al (US 4,530,779) as applied to claim 25 in numbered paragraph 2 above, and further in view of WO 98/06551.

With respect to claim 26, since the amount of wetting agent recited in this claim is old in the art as exemplified in the teachings of WO '551 and since one in the art would have been determined, by routine experimentationm a workable

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composition in order to obtain the desired processing characteristics, this claim would have been obvious in the art.

With respect to claims 1-9, 11-20, 27-35, for essentially the same reasons set forth in numbered paragraphs 5-6, these claims would have been obvious in the art.


Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.


Sam Chuan C. Yao
Primary Examiner
Art Unit 1733

Scy
08-19-03